

Beyond Carbon: Wetlands, Water and Habitat Markets

Christopher Hartley, PhD
USDA Office of Environmental Markets

March 17, 2016





United States Department of Agriculture

What are environmental markets?

Environmental markets are a voluntary means to reduce the cost of compliance with environmental regulations or to further the environmental goals.





Environmental markets can...

- Provide environmental benefits
- Expand revenue for working lands
- Reduce costs and increase flexibility of restoration or compliance requirements
- Increase opportunities for investment
- Accelerate conservation activities
- Improve accountability/effectiveness of existing conservation programs



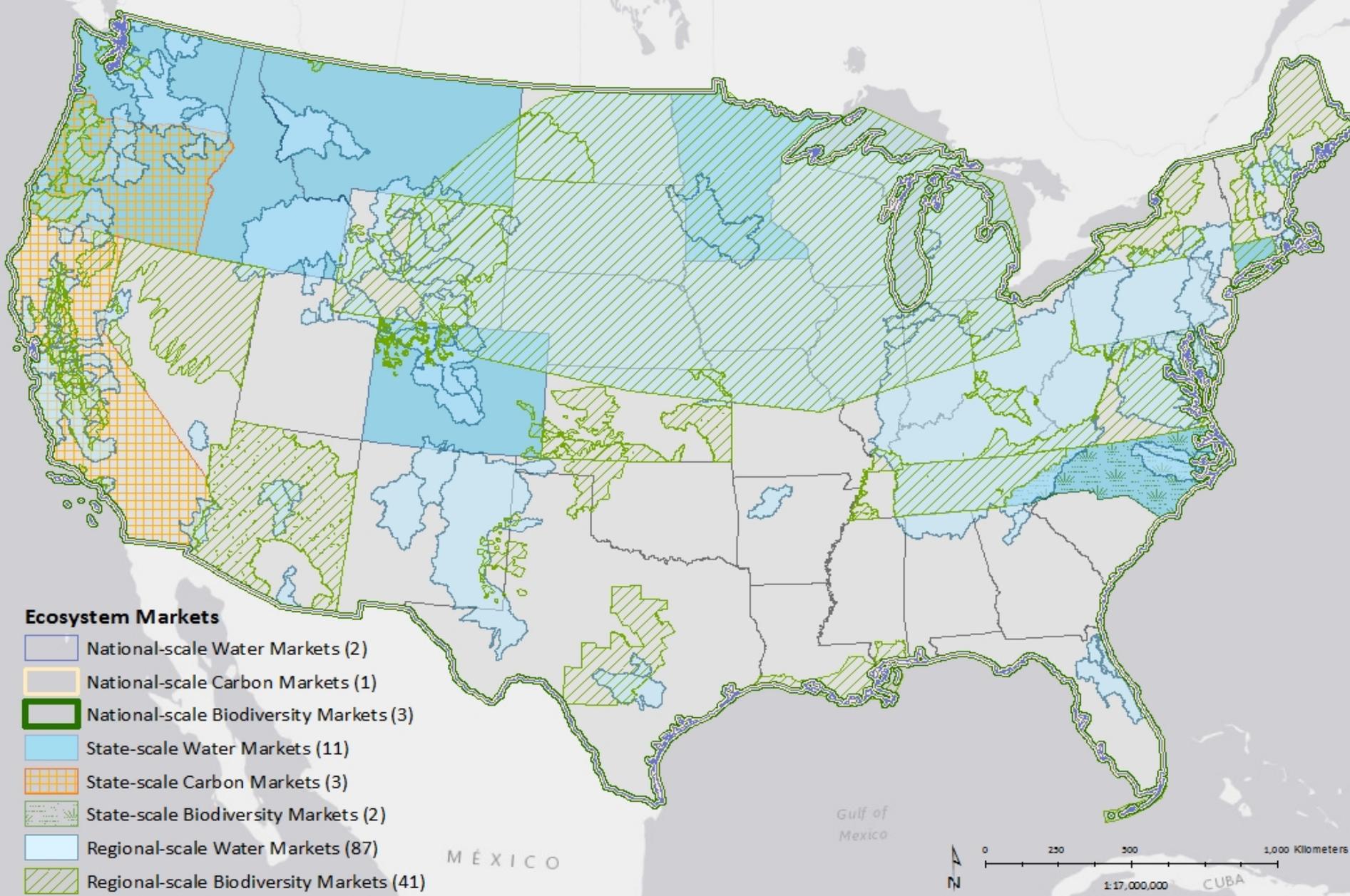
United States Department of Agriculture

What is bought and sold?

Ecosystem Services
(benefits people obtain from ecosystems)



ECOSYSTEM MARKETS COVERAGE (COMPLIANCE & VOLUNTARY) IN THE U.S., 2015





Sector	Volume	Year
Wetlands		
Banks	\$1.3 - \$2.2 billion	(2014)
In-Lieu Fees	\$0.65 billion	(2014)
Species and Habitat	\$2.0 - \$3.4 billion	(2011)
Carbon and Greenhouse Gas		
Voluntary	\$0.08 billion	(2013)
CA Regulatory	\$0.25 billion	(2014)
Water Quality		
Trading	\$0.01 billion	(2012)
PWS	\$0.005 billion	(2012)
Water Quantity		
In-stream buybacks	\$0.02 billion	(2011)

ECOSYSTEM SERVICE INITIATIVE GROWTH OVER TIME IN THE U.S.

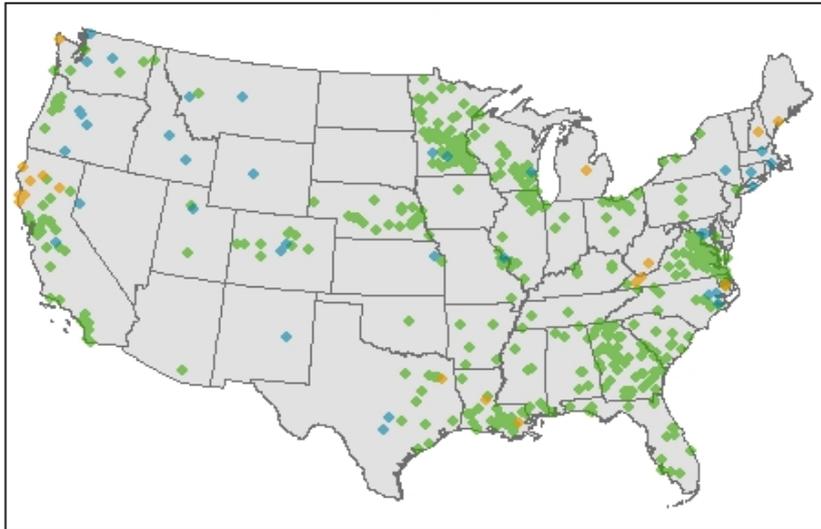
1985



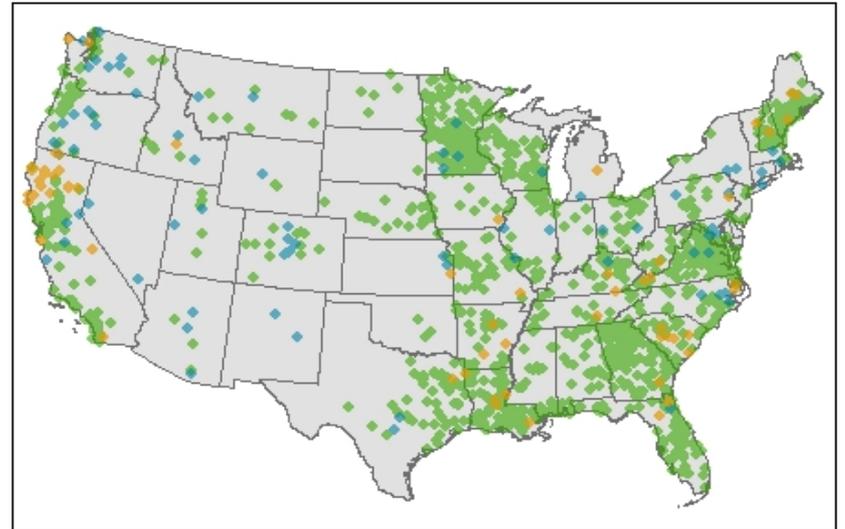
1995



2005

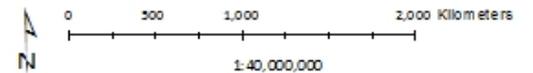


2015



Ecosystem Service Initiatives by Asset Type

◆ Water Initiatives ◆ Carbon Initiatives ◆ Biodiversity Initiatives





Who are the buyers and sellers?

		Sellers	
		Individuals	Governments
Buyers	Individuals	<ul style="list-style-type: none">• Markets for private ecosystem goods• Land trust conservation easements• Private environmental incentive payments• Consumption-based donations• Cap and trade markets	<ul style="list-style-type: none">• Public goods and services financed by taxes• Fees to government agencies for access to ecosystem goods• Fees (taxes or charges) for license to discharge
	Gov't	<ul style="list-style-type: none">• Incentives to private parties for provision of ecosystem services	<ul style="list-style-type: none">• Federal grants for environmental protection



United States Department of Agriculture

“USDA asserts no direct or indirect interest in credits generated with Farm Bill funds.”

- (a) However, USDA retains the authority to ensure that Farm Bill program purposes are met. In addition, any requirements or standards of an environmental market in which a participant simultaneously enrolls to receive environmental credits must be compatible with the purposes and requirements of the USDA program contract.
- (b) The participant must meet all operation and maintenance (O&M) requirements for program-funded activities
- (c) Participants may not use program funds to implement conservation practices and activities that the participant is required to establish as a result of a court order.



Environmental Markets & USDA

- In the 2008 Farm Bill, Congress instructed USDA to establish uniform guidelines for science-based methods to measure ecosystem services benefits ... and facilitate the participation of farmers, ranchers, and forest landowners in emerging ecosystem services markets.
- USDA established the Office of Environmental Markets (OEM)



United States Department of Agriculture

What is a tool?

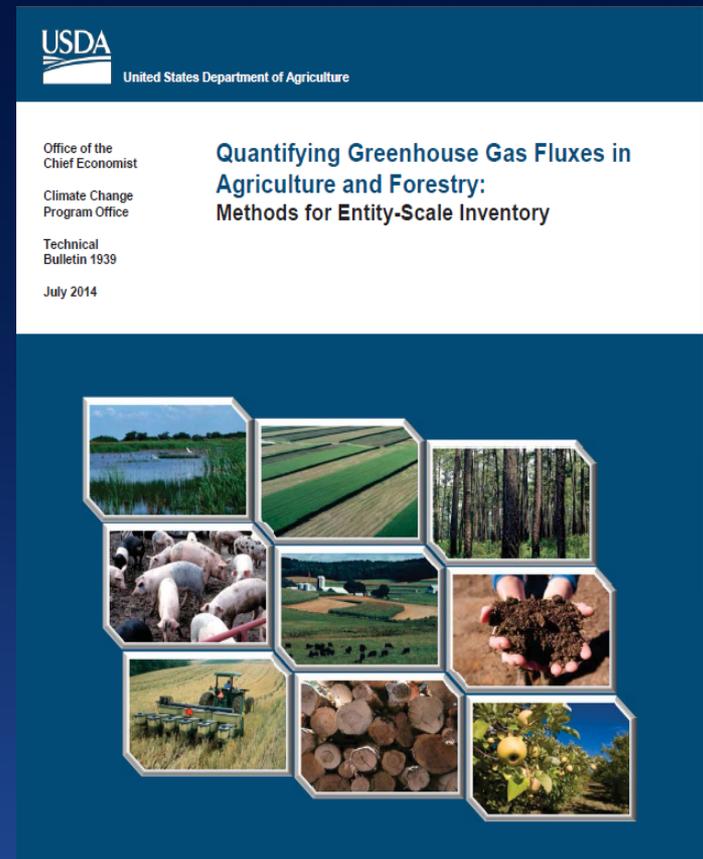




United States Department of Agriculture

Properties of Effective Tools

- User-friendly
- Transparent
- Meaningful
- Appropriate
- Consistent
- Accepted
- Cost Effective
- Science-based
- Meet Regulatory Criteria





Highlights

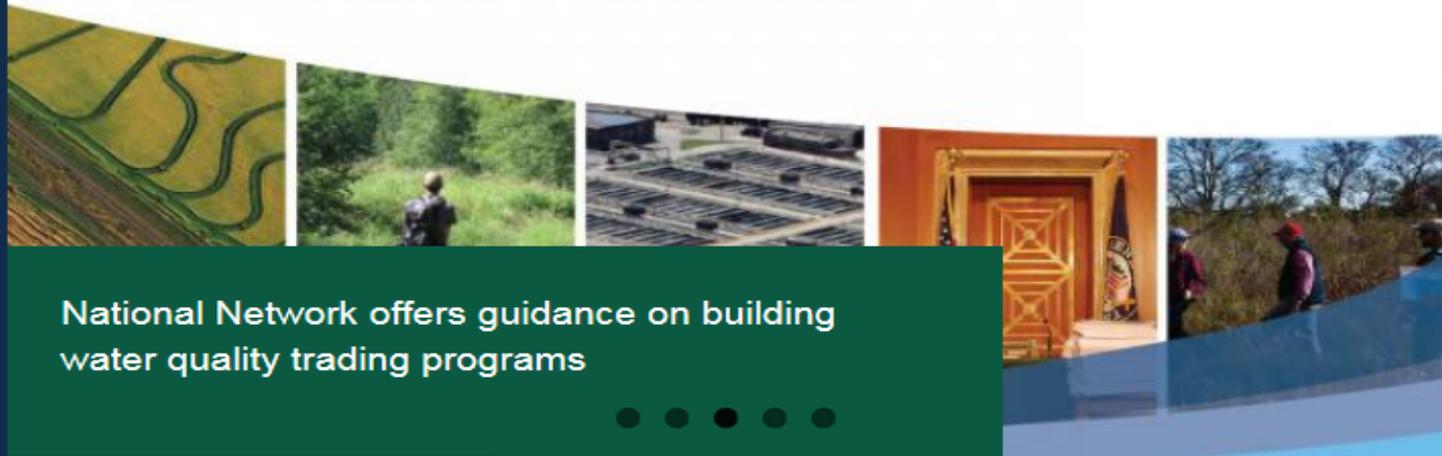
» National Network on Water Quality Trading: Building a Water Quality Trading Program

» USDA-EPA Water Quality Trading Roadmap

» USDA and Environmental Markets

Building a Water Quality Trading Program: Options and Considerations

Version 1.0 | June 2015: Point-Nonpoint Trades
A Product of the National Network on Water Quality Trading



National Network offers guidance on building water quality trading programs



Welcome to the USDA's Environmental Markets Website

Environmental markets are an innovative policy approach to increasing funding for environmental conservation and are often viewed as a complement to traditional conservation programs. Current active and pilot markets exist for greenhouse gasses, water quality, water quantity, wetlands, and habitats.

Use this site to find more information about different types of environmental markets, market resources and tools, and more information about environmental market activities at USDA.

Questions? Feedback? [Contact us.](#)

Environmental Markets in the News

- Water quality trading program awarded for innovation
- California Air Resources Board approves rice cultivation carbon offset protocol

Stay Connected



Welcome to the USDA-EPA Water Quality Trading Roadmap

The Roadmap is a web resource that provides information on water quality trading in one searchable database.

Use the search bar to explore a topic, or search by type of document using the brief, permit, statute, law, and policy filters.

- [Learn more about the Roadmap](#)
- [Learn more about USDA and EPA's Partnership on water quality trading](#)



More on Water Quality Trading at EPA



More on Water Quality Trading at USDA

Designing a Program

Selling Credits

Purchasing Credits

Water Quality Trading Roadmap

Advanced Search

Find the answer to your question

Search filters applied

Topic

Water Quality Trading

Water Quality Trading

+ Brief

+ Law

+ Permit

+ Policy

+ Statue

Related Answers

[How are National Pollutant Discharge Elimination System \(NPDES\) permits involved in trades? New](#)

Under Florida's water quality trading administrative code, "at least one of the trading parties must have an individual water quality trading permit" and credit-generation activities must be



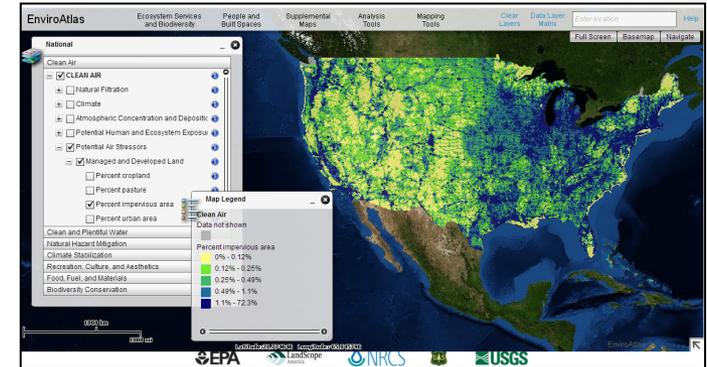
Feature: EPA Water Quality Trading Toolkit for Permit Writers

This Toolkit is EPA's "how-to" manual on designing and implementing water quality trading programs. Click [here](#) to learn more about incorporating trading in NPDES permits and more.

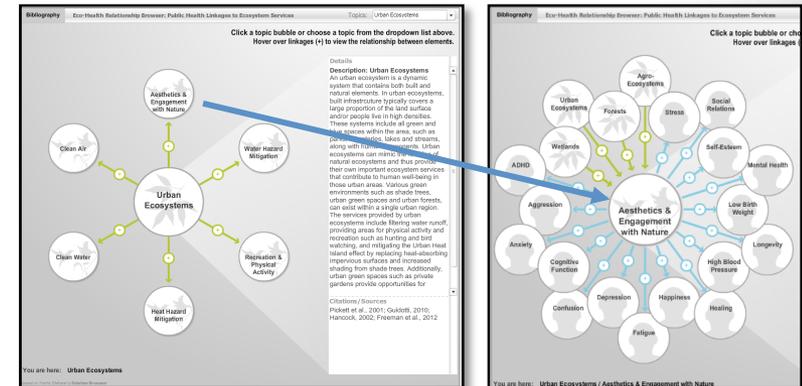


EnviroAtlas: Connecting Ecosystems, People, and Well-being

The screenshot shows the EnviroAtlas website homepage. At the top is the EPA logo and navigation tabs for 'LEARN THE ISSUES', 'SCIENCE & TECHNOLOGY', 'LAWS & REGULATIONS', and 'ABOUT EPA'. The main heading is 'EnviroAtlas' with a sub-heading 'You are here: EPA Home » Research » Ecosystem Research » EnviroAtlas Home'. Below this is a row of six small images representing different environmental topics. The page is divided into several sections: 'What is EnviroAtlas?' with a brief description and a list of features; 'Learn how to use EnviroAtlas' with a 'Welcome to EnviroAtlas' video player and a list of resources; 'Why is EnviroAtlas useful?' with a paragraph explaining its importance; 'About Us' with information about the collaborative project; 'Navigating EnviroAtlas' with a list of links; 'EnviroAtlas Interactive Map' with a 'Click here for map' button; 'Eco-Health Browser' with a 'Click here for browser' button; 'Related Links: General' with a list of research links; and 'Disclaimer' with a note about the first release.



Interactive Mapping Application



Eco-Health Relationship Browser

<http://enviroatlas.epa.gov>

What is EnviroAtlas?

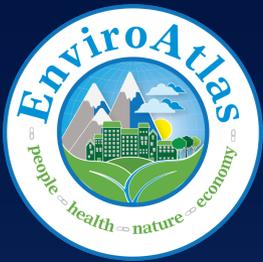
A web-based tool giving users ability to view, analyse, and download information to inform decisions concerning the places in which we live, work, derive resources, and play

- Multi-agency effort – EPA, DOI, USDA
- Geospatial indicators and indices of the supply, demand, and benefits
- Drivers of change
- Reference data (e.g., boundaries, land cover, soils, hydrography, impaired water bodies, wetlands, demographics, community design)
- Analytic, mapping, and interpretive tools





EnviroAtlas Market Plug-in



Data and analytics on markets and payments for ecosystem services

Market Fundamentals

- Map of programs
 - Water, carbon, biodiversity
 - Active and developing
 - Public, private, PPP
- Map of opportunities
- Map of barriers
- Map of outcomes
- Map of investment levels
- Map of growth

Markets in Context

- Markets vs climate risk
- Markets vs conservation priorities
- Markets vs ecosystem service value
- Markets vs public health indicators
- Markets vs economic indicator
- Markets vs productive lands
- Markets vs public & private lands





United States Department of Agriculture

Can CMS efforts contribute to
markets for wetlands, water
and habitat?

Yes!



How can CMS efforts contribute to other environmental markets?

- **Basic science and data**

“improving the accuracy, quantitative uncertainties, and utility of products for supporting national and international policy, regulatory, and management activities.”

- **Market innovation**

“development of carbon Monitoring Reporting and Verification [MRV] systems which can support current carbon trading protocols.”



Market-based approaches will not work everywhere

Market-based approaches work where:

- There is a strong "driver" (regulatory or financial)
- Participants have different abatement costs
- Uncertainty can be reduced
- Stakeholders and regulators work together to design and implement trading programs



United States Department of Agriculture

Market-based approaches work if...

... the Buyers, Sellers and Regulators are
Confident in the Efficiency & Credibility of
the Programs

Good

Science

...and the Public's Interest is Protected

Good



United States Department of Agriculture

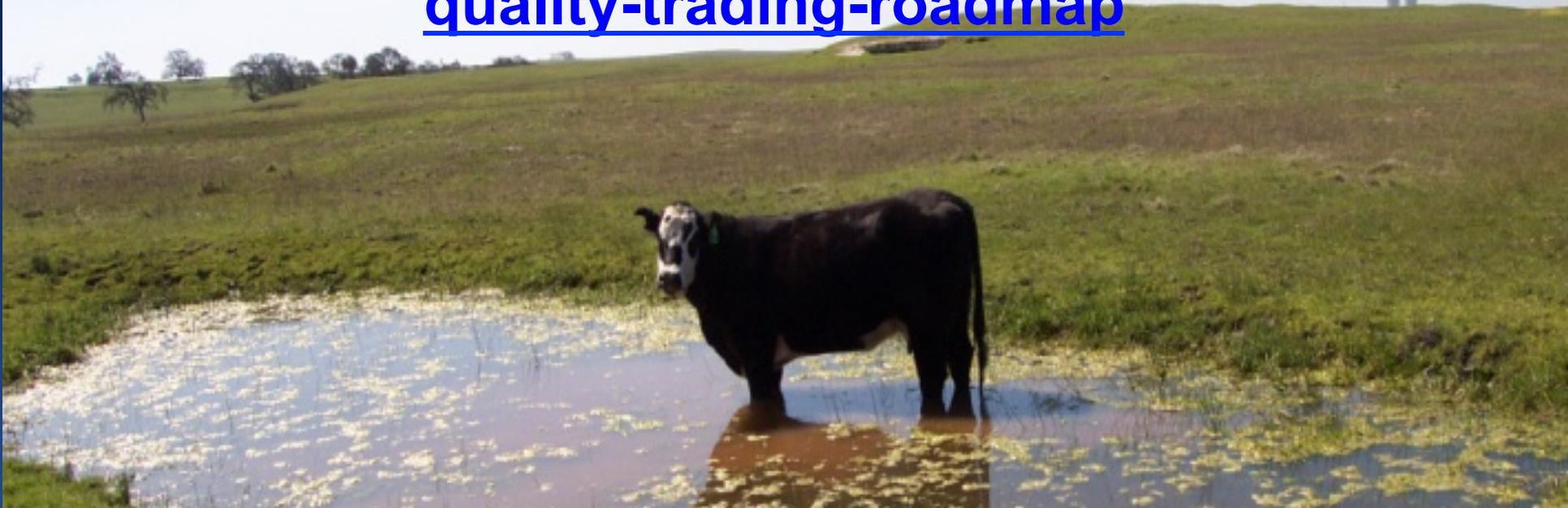
On-line Links

USDA Environmental Markets Home Page:

<http://www.usda.gov/environmentalmarkets>

USDA – EPA Water Quality Trading Roadmap Tool:

<http://oem.usda.gov/welcome-usda-epa-water-quality-trading-roadmap>





United States Department of Agriculture

Questions?

e-mail: chartley@oce.usda.gov

